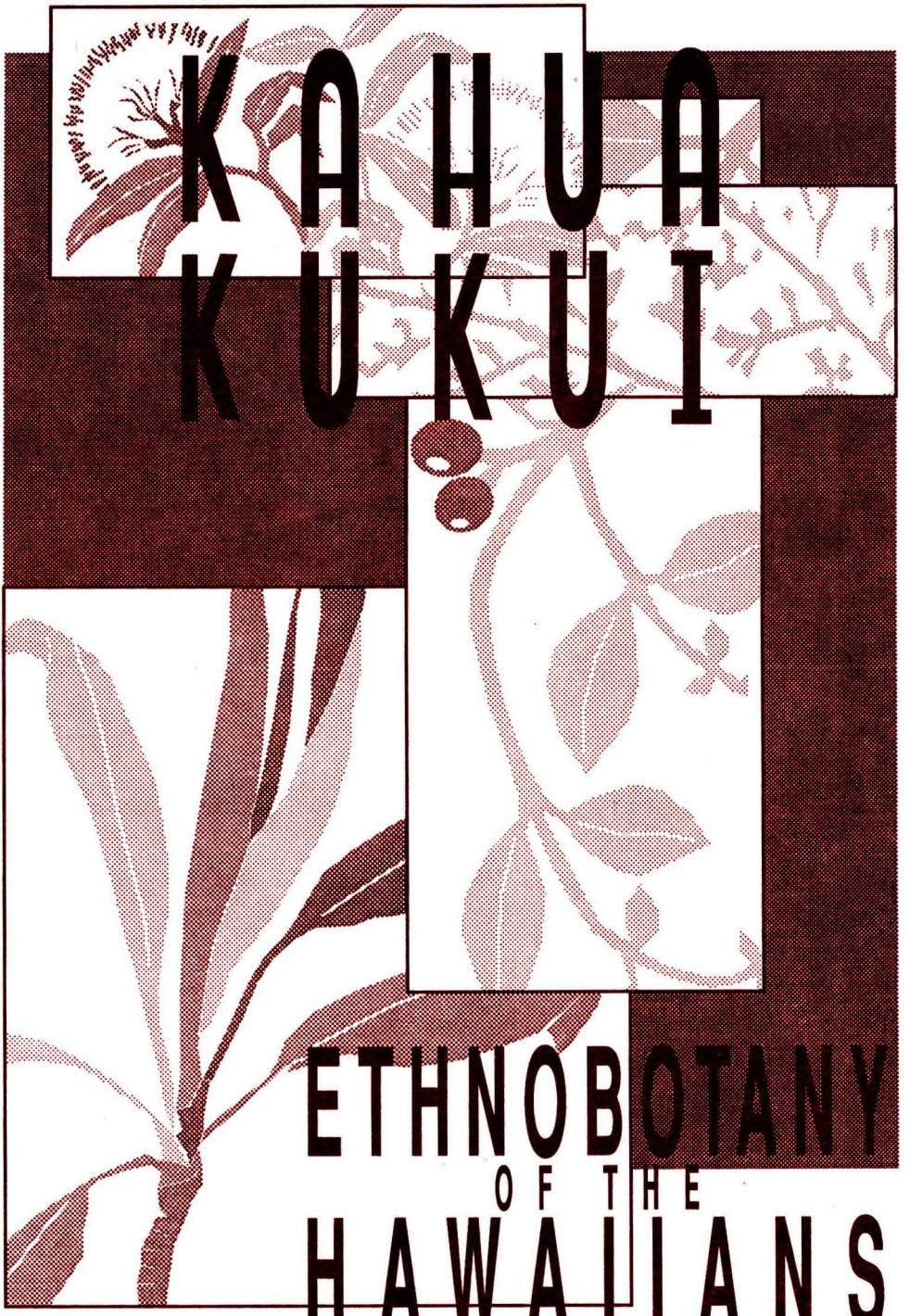

KAHUA KUKUI

ETHNOBOTANY OF THE HAWAIIANS

HONOLULU BOTANICAL GARDENS

HO'OMALUHIA BOTANICAL GARDEN

KAHUA KUKUI

PLEASE DO NOT PICK THE FRUITS AND
FLOWERS OR REMOVE ANY PLANTS

HO'OMALUHIA IS OPEN FROM
9:00 a.m. to 4 p.m.
Every day except Christmas and
New Year's Day

MAHALO TO:

Committee on the Preservation of Hawaiian Language, Art and Culture as a co-sponsor of this project.

The City and County of Honolulu, Department of Parks and Recreation, Division of Botanic Gardens as a co-sponsor of this project.

MAHALO NUI TO:

Paul Weissich, Pam Corpus-Lahne, Mike McKenney, Martha McDaniel, Olive Vanselow, Equipment and Maintenance Crew and the Program Staff of Ho'omaluhia.

Text, Art and Layout by Hiko'ula Hanapi.

Revised March 1996

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MAYOR'S MESSAGE

Ho'omaluhia is a 400-acre botanical garden jointly developed by the City and County of Honolulu and U.S. Army Corps of Engineers. Located at the foot of the Koolau mountains, it offers picnic areas, campgrounds, a 32-acre flood control reservoir, (no swimming, sorry), hiking and horse trails, and a community center with classrooms and an exhibition hall. Garden visitors can become involved in the environment through nature walks, hiking, camping, crafts, volunteer work and other awareness programs.

The Honolulu Botanical Gardens of the Department of Parks and Recreation manages the garden. Plants from the world's major tropical regions are displayed in different *Kahua*, or open places, forming a rich resource for learning and enjoyment. All collections emphasize ecology, the study of relationships in nature, and ethnobotany, the study of relationships between human cultures and the plant world.

As in any botanical garden, for your own safety and comfort, please do not pick leaves, flowers or fruits.

I encourage our residents and visitors to make good use of this garden in windward Oahu while helping to conserve Ho'omaluhia's plantings for the generations to come.

Jeremy Harris

JEREMY HARRIS, Mayor
City and County of Honolulu

KAHUA KUKUI

ETHNOBOTANY OF THE HAWAIIANS

HONOLULU BOTANICAL GARDENS
HO'OMALUHIA BOTANICAL GARDEN

ETHNOBOTANY OF THE HAWAIIANS

Ethnobotany is the study of how a particular ethnic group uses plants. Early settlers in Hawai'i, arriving between 300 A.D. and 500 A.D., introduced some thirty plants with Polynesian cultural and traditional significance. These plants were used for food, shelter, clothing, and medicine. Also, with experimentation and observation, many species of the native flora were found to be extremely useful.

Hawai'i's "re-discovery" by Captain James Cook in 1778 opened the way for many new plant introductions. Some of these newcomers, like sugar and pineapple in the 19th century and orchids and macadamia nut trees in the 20th century, have become economic assets. Unfortunately, however, many others have become pests, successfully competing for space with the fragile and unique Hawaiian flora.

Man's technology, through time, has brought great changes to traditional cultural beliefs, knowledge and practices of many peoples throughout the world, including the Hawaiians. The weaving of threads to make cloth has usurped the rhythmic beat of hand-made bark cloth or kapa. Metal tools have replaced stone, wood and shell tools, and even exotic liquors, such as gin, have been used as offerings to "Pele," the volcano goddess, instead of the tradition-steeped roots of the sacred 'awa.

The ethnobotany of the Hawaiians is a link to Hawai'i's aboriginal culture and a remembrance of how life was lived in harmony with the natural environment. Like Hawai'i's native flora, traditional values are disappearing. It is a sad commentary that both must find their most successful survival in places of refuge.

R. Hiko'ula Hanapi

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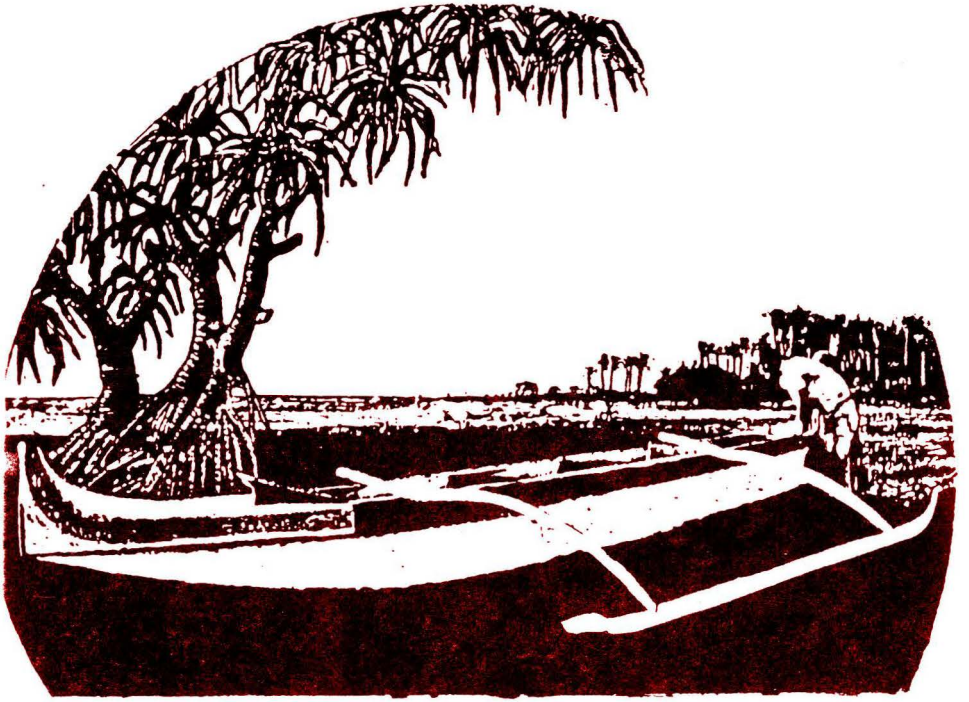

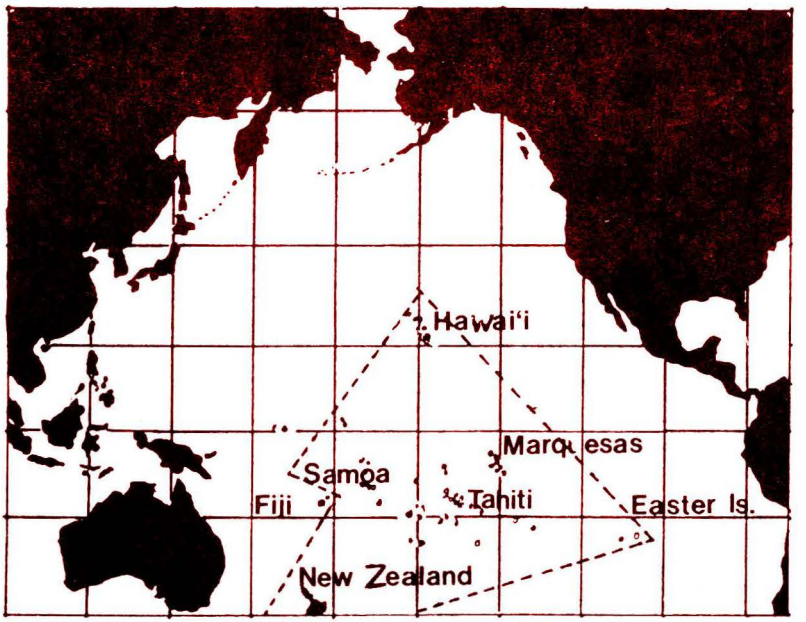
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kō ***Saccharum officinarum*** ***POACEAE***

Kō, or sugar cane, is a member of the Grass family. Hawaiians cultivated many varieties for sweetening foods and for medicine. Stalks were carried to chew on long journeys for curbing hunger pains. The long, slender stalks are sectioned by leaf internodes; the long, slender leaves were used for roof-thatching when other materials more suitable were not available and used for inside thatching in preference to other materials.

Hawaiian varieties

awela

This variety of kō has barrel-shaped internodes with green and yellow stripes, taking on a rose-colored hue when exposed to the sun. The leaves are variegated with green and white streaks. Another name for this kō is "pua'ole," describing this variety's lack of a flower stalk.

kea

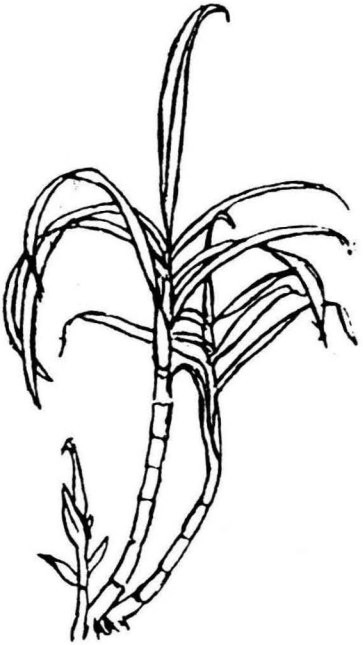
This medium-height kō grows in dense clumps and was a commonly cultivated variety. It was used in medicinal recipes as a sweetener and was believed to have therapeutic properties. The pith of the kō kea is white.

'ohe ***Schizostachyum officinarum*** ***POACEAE***

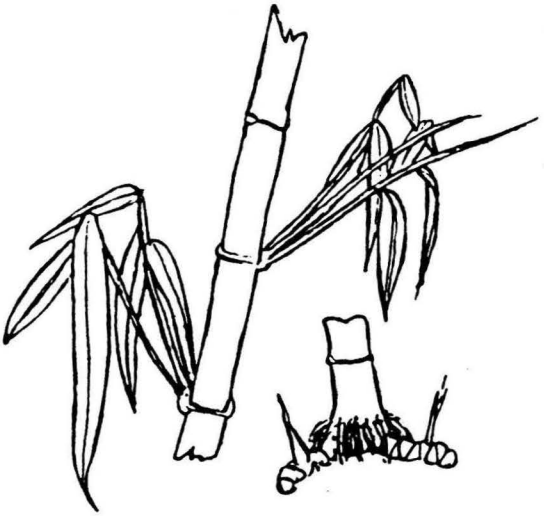
'Ohe is the Hawaiian name for this species of bamboo, another member of the Grass family. A Polynesian introduction, 'ohe readily became naturalized in wet forest areas and is now common on all the major islands of Hawai'i.

'Ohe grows in clumps and reproduces by underground rhizomes which spread easily, giving rise to long, slender, many-sectioned, hollow stems. From the stem nodes rise many fine branches supporting very narrow and small-pointed leaves. The Hawaiian 'ohe ranges from 15' to 19' in height.

In old Hawai'i, the long, woody, elastic stems were used as water containers, fishing poles, carved into stamps for decorating kapa, for musical instruments and many other utensils. Slivers of the bamboo stem were used as knives in circumcision ceremonies.



kō



'ohe

'awa ***Piper methysticum*** ***PIPERACEAE***

'Awa, or kava, grows best in well-watered areas like stream banks or between mountain taro patches. The plant clings to steep slopes where its roots become exposed. It was carefully cultivated in ancient Hawai'i. It has many variations in size and color of the roots, stems and leaves. Hawaiians chewed the roots, then mixed the chewed pulp with water to make a mild pain reliever. This same drink was given in sacrificial offerings to their gods. The 'awa stalk appears swollen and has many thick internodes with branching occurring at the nodes. Large, heart-shaped leaves develop at the branch tips and were prepared as a tea.

Hawaiian varieties

ku ma kua

This is a common green 'awa with smooth, medium-length internodes. This 'awa can reach heights of 15 feet.

hiwa

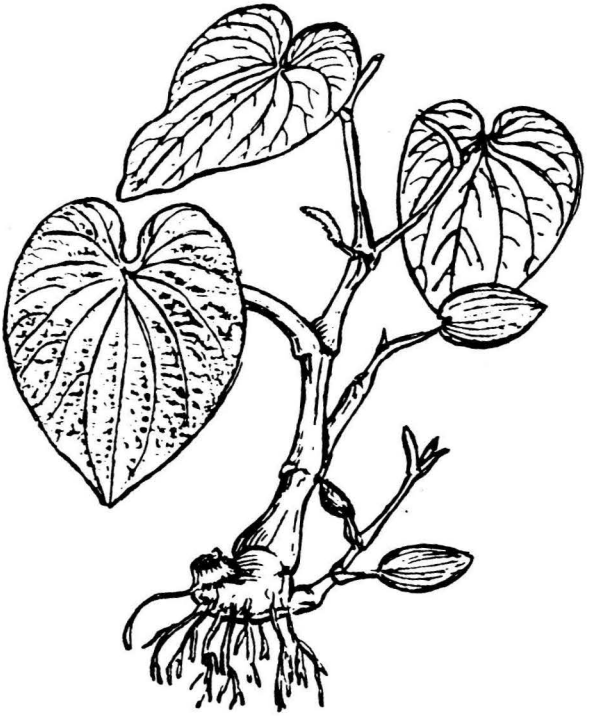
This 'awa is entirely black. Reaching heights up to 10-12 feet, the internodes are long and smooth. Hiwa was favored by the ali'i and in many cases was kapu to the common people.

kua'ea

This is a variety with long internodes with dark spots on stems and leaves.

'awapuhi ***Zingiber zerumbet*** ***ZINGIBERACEAE***

The 'awapuhi, a ginger, is a wild, forest herb. The seasonal, narrow leaves and stalk rise from a fragrant rhizome (the underground stem mistakenly called a 'root'). When dried and powdered, the rhizome was used by the Hawaiians to scent kapa. The stalks and leaves were placed in an imu to add flavor to the pig. On a separate stalk are borne the small, yellowish flowers in a red, oblong head; the flower head, when squeezed, produces a fragrant juice used as a shampoo. During the six months of the Hawaiian 'winter' season, the 'awapuhi rhizomes lie dormant underground, but at the onset of the 'summer' season, the leaf stalks rise and before the end of summer, the flowering stalks bloom.



'awa

'awapuhi

kalo ***Colocasia esculenta*** ***ARACEAE***

Kalo, or taro, was the staple food of the Hawaiians from remote times. The cultivation of kalo needed well-irrigated terraces called lo'i. Not all kalo grew in water; many varieties were land kalo. What is called the kalo 'root' is really a tuber which, when fully grown, is harvested and cooked. Hawaiians still make 'poi' from the cooked tuber by pounding and adding water. From the tuber rise the leaf stems which support large, heart-shaped leaves; the boiled leaves, called lu'au, are eaten like spinach. There are many varieties of kalo. The differences can be seen in size, color, texture of the roots, leaf stems, leaves and the flowers. The flower of the kalo is a yellowish-white tubular sheath enclosing a long spike.

According to legend, kalo was believed to be the progenitor of the Hawaiian race.

Hawaiian varieties

'elepaio

The 'elepaio variety is easily identified by the irregular and scattered white spots as well as white and green streaks from the base to the tips of the leaf. As the kalo matures, pink streaks appear, making this a very beautiful kalo to look at. The tuber is white and eaten as a table kalo.

kūmū

The kūmū variety has slender, pink to red stems supporting green leaves. The tuber and fine hair roots are pinkish and the tuber is noted for its flavor.

uahi a Pele

This kalo has purplish-black leaves when young which become green with large, black patches as they mature. The stems are also dark and slender. The tubers are whitish and good to eat.

poni

This variety is similar to uahi a Pele in that the leaf stems are dark purple. It was used for a kapa dye by actually stamping the kapa with the cut stem, leaving a round, purplish to brown dot. The leaves are a dark green and the tuber is good eating.

'apu wai

The cup-like curly leaf of this kalo is the most interesting feature of this Hawaiian variety. The young leaves are said to be very delicious when cooked for lu'au (likened to cooked spinach); however, they need to be cleaned thoroughly because of the water, dirt and insects which are trapped within the curly leaf. The leaves are supported by thick, green leaf stems. The whitish tuber is good to eat.

kalo

'ōlena ***Curcuma domestica*** ***ZINGIBERACEAE***

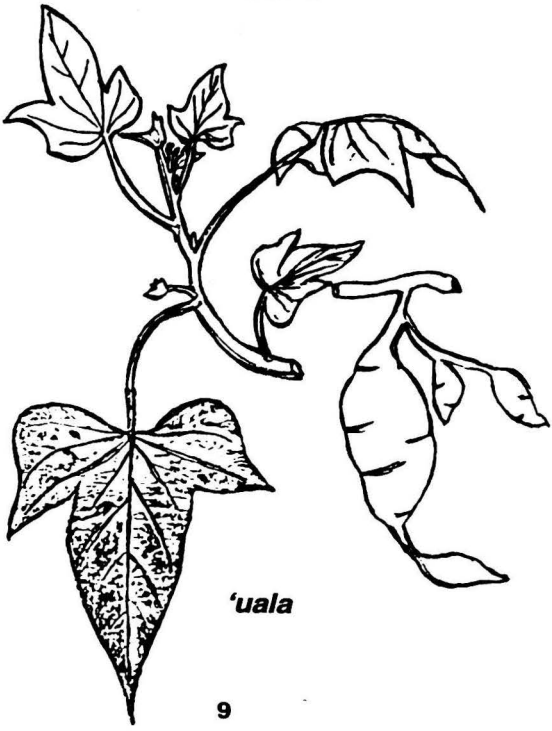
'Ōlena is also known as turmeric. The aromatic rhizome (frequently referred to as the 'root' but actually an underground stem) was an excellent source of a yellow to deep gold dye in old Hawai'i. Other beneficial uses of the rhizome: the juice of the crushed rhizome was used as a medicine for ear aches; the cooked rhizome was eaten as a cure for tuberculosis. The rhizome was crushed, mixed with sea water and sprinkled like holy water for purification rituals. Rising from the rhizome are the leaf stems supporting large, slender leaves. On a separate stalk is found the 'ōlena's beautiful flower: tiny yellowish flowers appearing from many-pointed, cup-like, spiraling bracts. The flower stalk may reach a foot in height. Like the 'awapuhi ginger, the leaves and stalks of the 'ōlena sprout in spring and die in fall.

'uala ***Ipomoea batatas*** ***CONVULVULACEAE***

There were many varieties of 'uala in old Hawai'i. These sprawling vines were cultivated by Hawaiians on rocky slopes and poorly watered areas for the edible tubers they produced. The tubers had many uses: for food; fish bait; and, along with the vines and leaves, as food for fattening pigs.

The 'uala is another of Kamapua'a's plant forms. In Hawaiian legends he is a mischievous pig-god.

ʻōlena



ʻuala

kī ***Cordyline fruticosa*** ***AGAVACEAE***

Kī, commonly known today as "ti", is found from the sea to low, wet forests and was often planted near homes in old Hawai'i. The woody roots store sugar; kī was known to Hawaiians as having "sweet roots." The roots were cooked then pounded and made into a poi and, after Westerners arrived, roots were used for making a local liquor called "'okolehao." The slender, leaf-scarred stem supports a whorl of long, shiny, slender, green leaves. The leaves had numerous uses: for house thatch, food wrappers, hula skirts, sandals, cordage and more.

The kī plant was a symbol of purity in old Hawai'i: leaves were employed by all classes to bless, consecrate, make sacred or kapu and to protect people, places and things from harm.

hau ***Hibiscus tiliaceus*** ***MALVACEAE***

Hau is a common lowland tree which grows irregularly, creating large, dense thickets. The light balsa-like wood was used for the booms of their canoes, as floaters for fish nets and for kapu markers on beaches where fishing was temporarily prohibited. The inner bark was used to make good cordage. The large, round, heart-shaped leaves were used for mulch for land kalo cultivation. The yellow flowers are cup-like with five petals which turn red before they fall from the tree. A medicine for easing childbirth was made from the base of the flower.


kī


hau

mai'a ***Musa x paradisiaca*** ***MUSACEAE***

Mai'a, banana, was extensively cultivated in old Hawai'i. Many "hands" of finger-like fruits are attached along the length of the banana stalk. As food, bananas were of lesser importance than kalo and 'uala. Women were allowed to eat only three varieties of mai'a. Certain kinds of mai'a were offered as sacrifices to the gods. The crushed leaves and banana stems (trunks) were used for making steam in underground ovens (imu) and as rollers to move canoes. The trunk fiber was used for covering food placed in an imu. A dye could be made from the juice of the flower buds and the nectar from the tip of the young banana flowers was used as a source of vitamins.

Hawaiian varieties

hapai

The hapai banana's fruit grows inside the trunk, making this variety unique and interesting. Swarming fruit flies or ants, attracted to the swollen trunk, are a sign the fruit is ripe. The small, finger-like fruit's skin and flesh are yellow; the fruit is edible raw.

Other distinguishing marks: the hapai banana is of medium height, it has green leaves and the trunk is green with black streaks. Hapai means "to carry," also "pregnant," describing the swollen trunk.

iholena

The iholena banana has bunches of small, green angular fruit when young, turning yellow when ripe. The ripe, pink flesh is edible raw or cooked.

Other distinguishing marks: the young leaves are a light red on the underside and the trunk is green with purple and pink streaks.

This is one of the three bananas which women in old Hawai'i were allowed to eat.

haikea

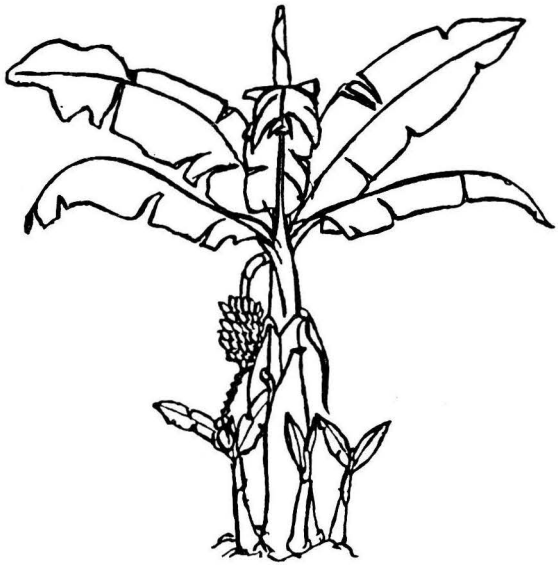
The haikea banana's angular and slightly curved fruit has a thick, waxy, yellow skin when ripe. The flesh is yellow and is edible raw or cooked.

Other distinguishing marks: the leaf stem has a

brownish base, becoming green with a reddish wash along its length. The trunk is green with a light reddish base; it is a tall plant.
The name haikea suggests that this variety was possibly used for offerings to the Hawaiian gods. Haikea means "light green offering."

manai'ula

The manai'ula's unripe fruit have thin, dark-red skins turning green and then yellow when fully ripe. The flesh is orange-colored and only edible cooked.
Other distinguishing marks: the leaves are green above, pinkish underneath and along the midrib the trunk is light green to dark brown.
Manai'ula stalk fibers were used as string for sewing flowers with a coconut needle which is the meaning of manai; 'ula refers to the color of the immature red fruit. This was a commonly cultivated banana.



mai'a

kou ***Cordia subcordata*** ***BORAGINACEAE***

Kou trees were planted in dry, sunny areas. Kou is a quick-growing tree with a straight trunk. The soft wood was prized in old Hawai'i. It is long-lasting and beautifully grained with its golden light and dark markings. The wide-spreading kou branches give rise to smooth, round leaves which were used for a brown dye. The pale orange, tubular flowers are borne in clusters and have no scent but make beautiful leis. The green to yellow fruit is small, dry, hard and round, containing one to four seeds.

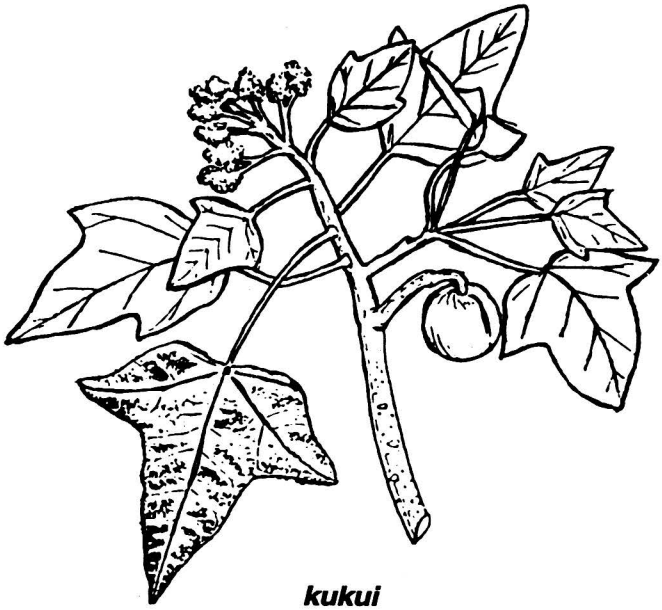
kukui ***Aleurites moluccana*** ***EUPHORBIACEAE***

The kukui is one of the most commonly seen trees in the islands today and is found from Hawai'i's forests to near her shorelines. Kukui, meaning "light," was an important tree in old Hawai'i. The soft wood was used for parts of the canoe, the roots for paint and kapa dye, the three- to five-lobed, silver-green leaves for leis and as a mulch for dryland kalo and the clusters of small, white flowers were also used for leis.

The most used part of the kukui was the mature, oily kernel or nut and the outer parts of the fruit. Roasted nuts produced an oil used for illumination. The nuts were strung on coconut midribs, thus acting like a candle. When used as a condiment, the roasted nut was crushed and mixed with salt and this was called "inamona." The outer, fleshy husk surrounding the hard nut shell was used for making a grey dye. Where the green fruit is picked, a clear sap emerges which was used in old Hawai'i for treating cold sores and thrush. The hard nut shell was used for making a black dye and today the shells are made into seed leis.

Kamapua'a chose the kukui as one of his plant forms in ancient Hawai'i and today the State of Hawai'i has chosen the kukui for its official State tree.

kou



kukui

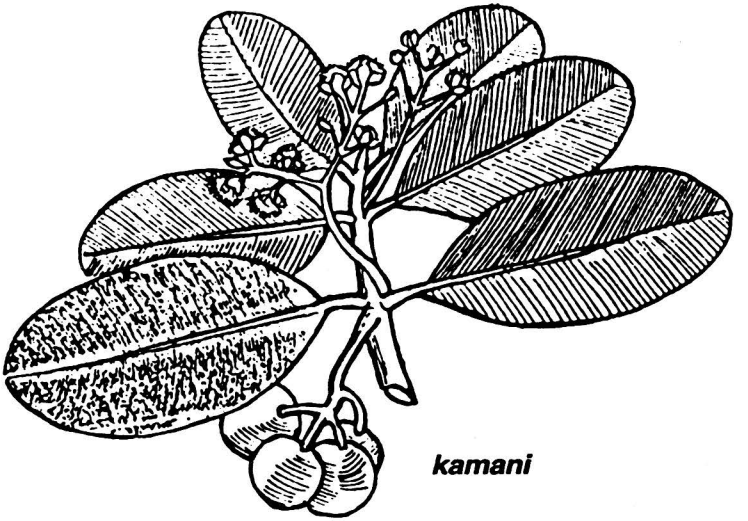
kamani ***Calophyllum inophyllum*** ***CLUSIACEAE***

Kamani was brought by the Polynesians to Hawai'i and was planted in groves near their homes, providing shade. The crooked, silver-grey trunk was a source of wood for calabashes, utensils and food bowls as well as for parts of the Hawaiian canoes. In other Pacific islands kamani or 'tamanu' was used for making the dug-out hulls of canoes; it is possible the original Polynesians who came to Hawai'i sailed in canoes made of kamani.

The kamani's leaves are shiny green on top and yellowish-green underneath. They are long, oblong, and blunted at the tips. The small white cluster of flowers is fragrant. The round fruits (about an inch in diameter) are pinkish-green when young, eventually turning bright green at maturity. The seeds are slightly poisonous and the oil from the seeds could be used by Hawaiians for illumination as a substitute for kukui nut oil.

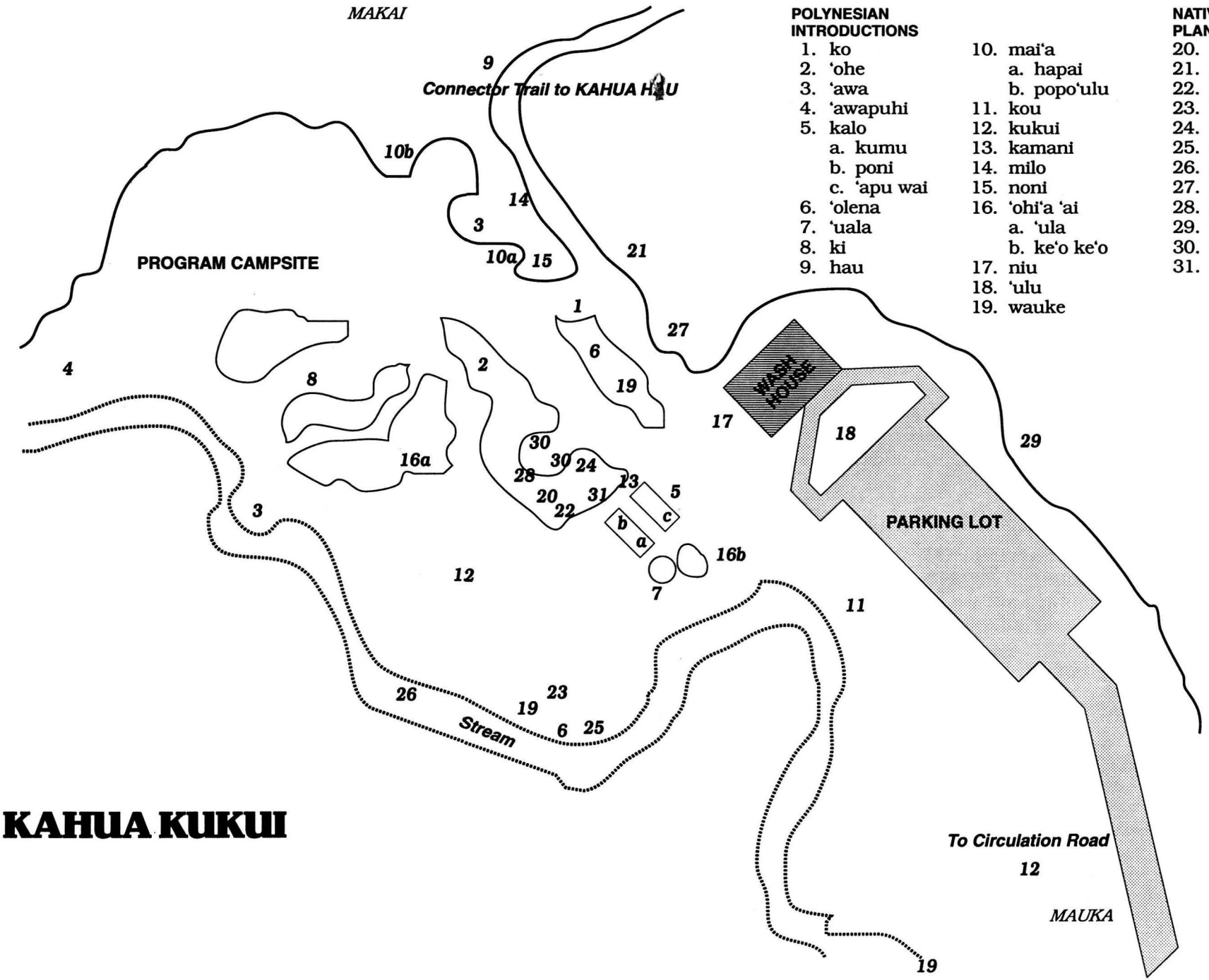
milo ***Thespesia populnea*** ***MALVACEAE***

Milo trees were planted around Hawaiian homes for shade in old Hawai'i. The milo has wide, low branches and a thick trunk with a rough bark and scaly twigs. The Hawaiians found the beautifully-grained, dark-red wood to be second only to kou wood for making calabashes, plates and other wood utensils. The leaves are heart-shaped with long, pointed tips and are glossy. The bell-shaped flowers are yellow with deep purple centers and fade to a light red before falling from the tree. The hairy fruit are woody, five-celled capsules containing the seeds which ripen in dry areas.



kamani

milo



POLYNESIAN INTRODUCTIONS

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   b. poni
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6. ʻolena
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8. ki
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    b. popoʻulu
11. kou
12. kukui
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15. noni
16. ʻohiʻa ʻai
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17. niu
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19. wauke

NATIVE HAWAIIAN PLANTS

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22. palapalai
23. ʻukiʻuki
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26. mamaki
27. hala
28. halapepe
29. koa
30. ʻohia lehua
31. ʻaʻaliʻi

KAHUA KUKUI

noni ***Morinda citrifolia*** ***RUBIACEAE***

Noni, Indian mulberry, is a small tree common to the open lowlands. Hawaiians had many uses for noni: the root was made into a red dye; the thick, coarse, leaf-scarred branches and big, shiny, ovate leaves were prepared as a tonic and the noni branch stems were used for a yellow dye. The small, white flowers are borne on a round, warty head. When the flower head ripens, it becomes a foul-smelling fruit containing three seeds (kernels). The fruit was cooked and eaten in times of famine, prepared as a medicine and used as an insecticide.

ʻōhiʻa ʻai ***Syzygium malaccense*** ***MYRTACEAE***

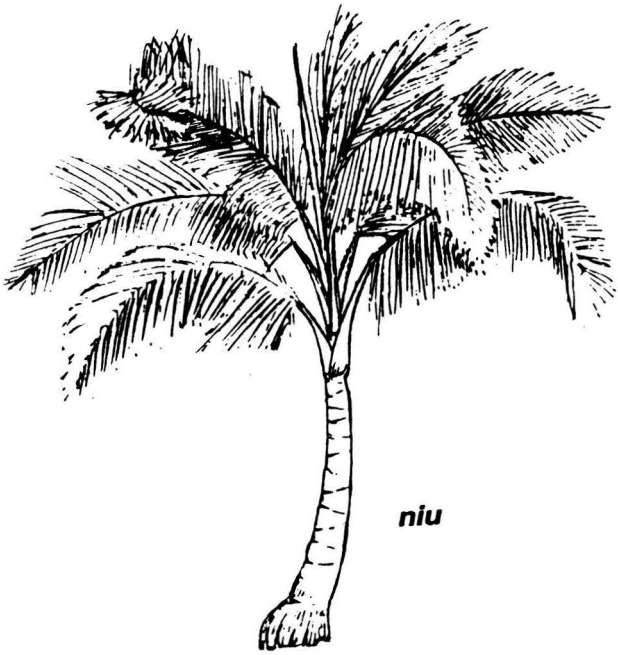
ʻŌhiʻa ʻai, mountain apple, grows uncultivated in the wet forest areas throughout the Hawaiian Islands. This handsome tree was introduced to Hawai'i by the Polynesians. The wood was used in house building, young twigs were chewed as a sore throat remedy and the fruit was eaten raw. The pinkish, pompom-like flowers resemble the flowers of the ʻōhiʻa lehua (the ʻōhiʻa ʻai keʻo keʻo - "white" - had white flowers and fruit). The green leaves are shiny, narrow, long and have a short, pointed tip.

niu ***Cocos nucifera*** ***ARECACEAE***

Niu, coconut, grows to 100 feet in height and is seen along coastlines and at lower elevations. The trunk is swollen, rising with a curve and having a ringed, slender upper trunk used for hula drums, small canoes and house posts in old Hawai'i. At the top of the trunk is a cluster of long fronds reaching up to 18 feet in length with many 1-3-foot-long leaflets. Niu leaves had many uses: house thatching, baskets, fans, fish traps, the collected midribs made brooms, the single midrib was used to string roasted kukui nut kernels for lighting and as lei needles. White female and male flowers are borne on a stalk of flower branches. Its fruits have a thick, fibrous outer husk enclosing a hard shell protecting the white meat and coconut water. The Hawaiians used all parts of the fruit: the outer husk made a strong sennit; the hard shell made bowls, utensils and musical instruments; and the meat and water were important for food, especially on long ocean voyages.

noni

ʻōhiaʻa ʻai



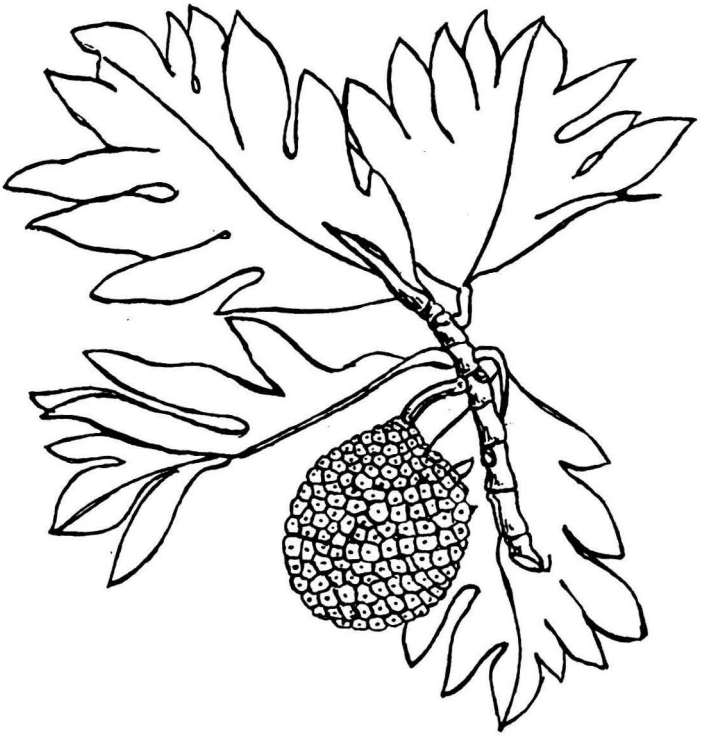
niu

'ulu ***Artocarpus altilis*** ***MORACEAE***

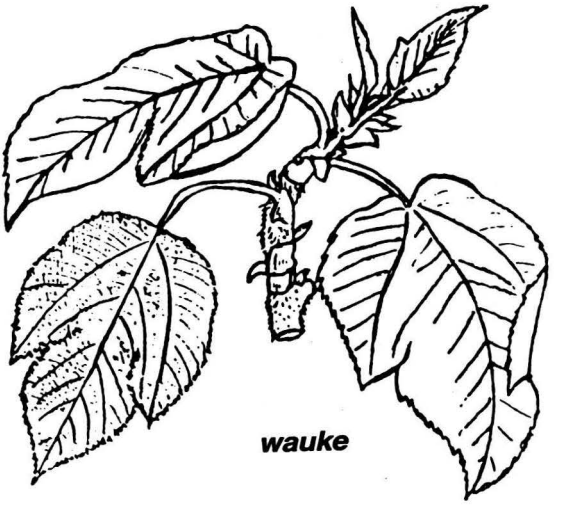
The 'ulu, breadfruit tree, was planted near homes and could be found growing in the lowlands and wet upper valleys in old Hawai'i. This plant was propagated from young root suckers of a mature tree and great care was taken in its cultivation. The soft wood from the trunk was used for making temple drums, in parts of canoes and for surfboards. The young inner bark was used for a coarse grade of kapa (bark cloth). The white, sticky sap was used as a caulking for canoes, as a lime for catching birds and as a medicine for skin diseases. The female composite flower begins as a slender spike which develops into a round, green fruit which was eaten baked or boiled. The male flower is a slender spike of many tiny flowers and was used as a source for a brown dye after falling from the tree. The leaf-sheaths around the male flower were used as a fine sandpaper. The large, lobed 'ulu leaves had no use in old Hawai'i but made the tree very attractive.

wauke ***Broussonetia papyrifera*** ***MORACEAE***

Wauke, paper mulberry, was cultivated in the lowlands and yielded a superior bark fiber which the Hawaiians made into kapa. It was from wauke that the Hawaiians produced the softest and most durable kapa. Cordage was another use for the fiber. The slender, woody and hairy stem supports long branches with leaves that are round, many-lobed and have serrated edges. The leaves are also hairy. The slimy sap was believed to have been used as a mild laxative.



'ulu



wauke

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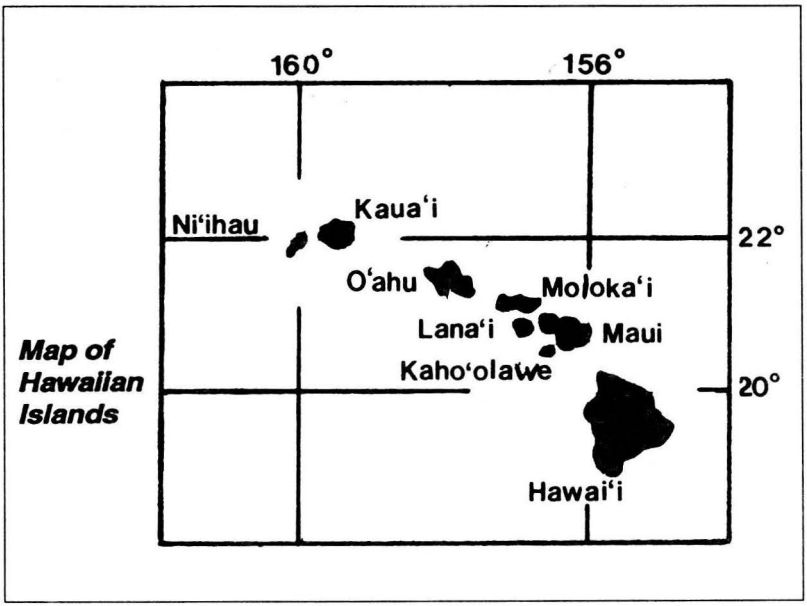


Map of Hawaiian Islands

'ēkaha ***Asplenium nidus*** ***ASPLENIACEAE***

The birds-nest fern, known as 'ēkaha in Hawai'i, is native to the islands but is also found throughout the tropics. Many large fronds arise from a central point, forming a large rosette. The dark middle rib of the fronds was used in plaiting mixed with hala leaves to create two-color designs. In the lower forests the 'ēkaha can be commonly seen growing on top of large, moss-covered rocks and on branches of trees.

hāpu'u ***Cibotium glaucum*** ***DICKSONIACEAE***

The native hāpu'u is a common forest tree fern. It can reach a height of 16 feet. The trunk core, a source of starch, was cooked as a famine food by Hawaiians. The large, ovate fronds, reaching nine feet in length, rise from the top of the hāpu'u trunk; young curled fronds are edible. The dark stems rise through a soft, golden down called "pulu." Pulu was used to embalm the dead in ancient Hawai'i.

pala'ā ***Sphenomeris chinensis*** ***LINDSAEACEAE***

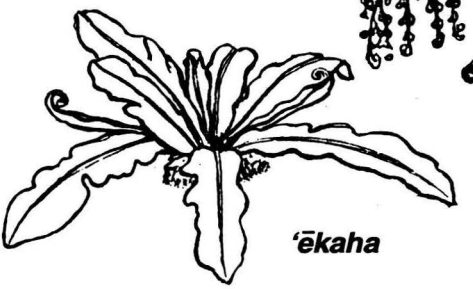
Pala'ā is a native fern that grows in wet, semi-shaded lower forests to mountain forests. The light-brown to reddish, smooth stems, about one foot high, rise from underground stems or rhizomes. The smooth, ovate, pointed fronds have numerous alternating, lacy leaflets arranged on the stem. The fresh fronds were used as lei material and, when dry, made a brown dye in old Hawai'i.

Pala'ā was one of Hi'iaka i ka poli o Pele's (Pele's favorite sister) plant forms.

palai, palapalai ***Microlepia strigosa*** ***DENNSTAEDIACEAE***

The native palai fern grows wild in damp mountain forests. Today it can also be found cultivated. The green stems support many lacy but hairy leaflets and these ovate fronds can grow to three feet or more in length. Palai is an important lei-making material especially for hula and is one of the plants found adorning hula altars.

hāpu'u



'ēkaha

pala'ā

palai

'uki'uki ***Dianella sandwicensis*** ***LILIACEAE***

'Uki'uki, a native mountain lily, has long, slender, glossy leaves. Rising from the center of the leaves is a stem which supports a cluster of tiny, whitish flowers. The fruits are dark blue berries and were used by the Hawaiians as a blue dye for kapa.

'ie'ie ***Freycinetia arborea*** ***PANDANACEAE***

This is a native climbing shrub common to Hawai'i's forests. The green, woody stem is striped with leaf scars. The long, slender leaves, growing in whorls, are found rising from branch tips. The long, pliable roots grow above ground, attaching themselves to host trees for support. Hawaiians collected the roots and used them for basket plaiting. A seasonal inflorescence develops from the center of the tuft of leaves and consists of several spikes enclosed by orange, leafy bracts; these flowers were used for decoration.

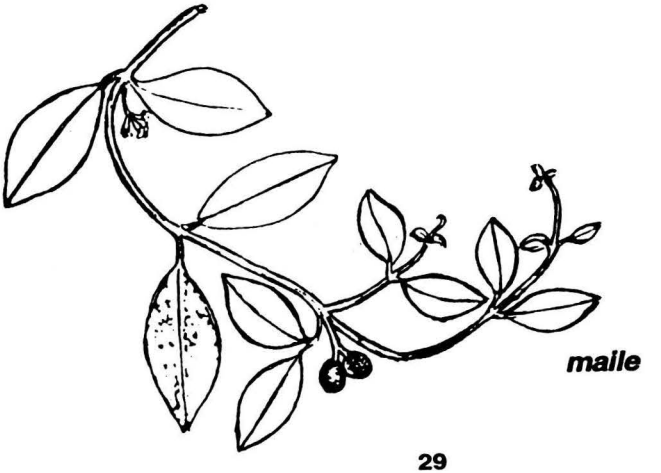
'Ie'ie was considered sacred by the Hawaiians and was one of the important plants that adorned the altars of hula. This was one of the plant forms of Laka, one of the goddesses of hula.

maile ***Alyxia oliviformis*** ***APOCYNACEAE***

The native maile vine inhabits the wet mountain forests of Hawai'i. Hawaiians speak of five kinds: the maile lau nui, maile lau li'i, maile kaluhea, maile pakaha and maile ha'i wale. These vines are commonly seen climbing on 'ohi'a lehua and other forest trees. The climbing stem's outer bark is green and turns grey as it matures. When Hawaiians stripped the vine for leis, a milky sap was released as well as the maile's famous fragrance. The shiny leaves vary according to the different kinds: they can be button-shaped to small or large, narrow leaves with pointed tips. The four-parted yellowish flowers are very tiny and tubular. The olive-like fruits are black and contain one seed. Maile is one of the important plants found adorning the altars of hula and is another plant form of the hula goddess, Laka.

'uki'uki

'ie'ie



maile

'āhinahina Artemisia australis ASTERACEAE

This 'āhinahina is a native, low-spreading shrub found in the mountains up to high elevations. Its leaves have many narrow segments and are silver-grey underneath. The leaves were used in preparing a medicine for asthma.

'ilima Sida spp. MALVACEAE

'Ilima is a native shrub found as a thick ground cover along sandy shorelines or as wide-branching bushes in low dry forests. The small, bright-orange, five-petaled flowers were used in "haku" and "wili" leis in old Hawai'i and the flowers were fed to young children for upset stomachs.

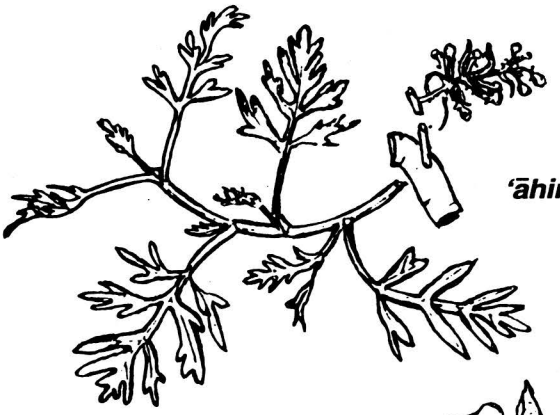
Today the 'ilima flower is strung with needle and thread, using approximately 600 flowers per lei, and is the official lei of the island of O'ahu.

pōpolo Solanum americanum SOLANACEAE

Pōpolo, a native herb, is a seasonal plant commonly found wild in Hawai'i's lowlands. The smooth, green stems and ovate leaves were a famine food in old Hawai'i. The leaves were eaten raw or cooked and made into a tea for treating coughs and sore throats. As a poultice, it was used for sprains and on open wounds. The immature fruits are green, turning purplish-black when ripe. A green dye was obtained from the fruits and leaves.

'a'ali'i Dodonaea viscosa SAPINDACEAE

This native shrub is found growing in the wild at elevations of 1,000 to 8,000 feet. The hard wood was used for making digging sticks and house posts. The narrow, spatulate leaves have either blunted or pointed tips. The sticky tips were used to treat skin ailments. The green-to-red fruit capsules, along with the leaves, were, in old Hawai'i and still today, used for lei making. Several tiny black seeds are found in each dried, papery fruit capsule.



ʻāhinahina

ʻilima

pōpolo

ʻaʻaliʻi

'ākia ***Wikstroemia spp.*** ***THYMELAECEAE***

There are many native 'ākia; one lowland species is a low-branching ground cover with round, button-shaped leaves which contrast with forest species which have slender, erect, many-branched stems with leaves that are long or short with pointed tips. All species have clusters of tiny, yellow, tubular flowers and small, ovoid, yellow-to-red fruits which cluster at the branch tips.

Hawaiians prepared a "fish poison" from one 'ākia species (W. oahuensis) by pounding the roots, bark and leaves to release a chemical which temporarily stunned fish when placed in ocean tide pools. Only desired fish were gathered, the others would be able to swim away after the 'ākia's stupefying effects wore off. No part of the 'ākia is poisonous to mammals. The bright fruits may be strung into leis.

ma'o ***Gossypium tomentosum*** ***MALVACEAE***

This native shrub is Hawaiian cotton and grows in hot, dry areas. It is a wide-branching bush with a covering of short, white hairs. The three- to five-lobed leaves were used to make a green dye. The seeds are surrounded with short, brownish, cotton fibers.

alahe'e ***Canthium odoratum*** ***RUBIACEAE***

This is a native hardwood tree growing in Hawai'i's drier regions. The hard wood was used by Hawaiians to make digging sticks called 'ō'ō. The leaves are oblong and shiny and were used to make a black stain. The fragrant white flowers bloom during the summer and are still prized for making leis.

ʻākia

maʻo

alaheʻe

māmaki ***Pipturus albidus*** ***URTICACEAE***

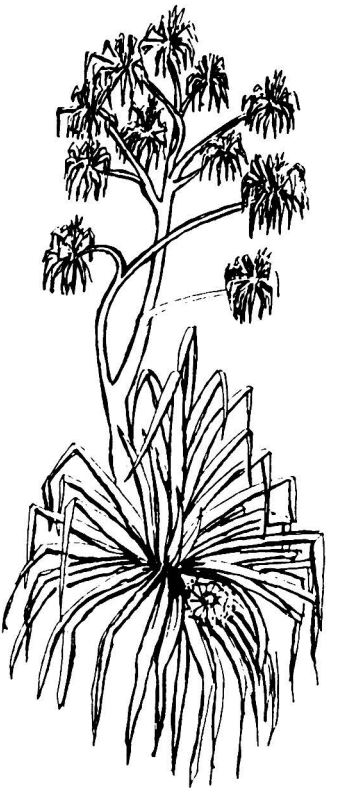
Māmaki is a native shrub commonly found in Hawaiian forests. The inner bark of the slender, smooth stems and branches was used for a lesser grade of bark cloth in old Hawai'i. The ovate leaves, light green on top and whitish underneath with three veins originating at base and radiating outward, have serrated edges. One variety has bright red veins. The leaves make a good-tasting tea. Male and female flowers may occur on separate plants; the female flower is fuzzy. The small, white, waxy fruits are berries and contain many seeds. The berries were used as a poultice for sores and wounds and eaten for their mild laxative effect.

hala ***Pandanus tectorius*** ***PANDANACEAE***

The native hala tree is found in groves in lower forest areas and along Hawai'i's shorelines. Prop roots support a central trunk and many low branches. Hawaiians used the long, slender leaves for house thatching and for plaiting mats and baskets. The leaves rise in a whorl at the branch tips and have tiny spines along their edges. The fruit (female flower) is fragrant when ripe and the individual seeds (keys) were used as a famine food, for leis and, when dry, as paint brushes. Hala leis were not given to wish someone well but were used only to signify the passing of an ordeal, sin or at a funeral. The male flower, hinano, is a spike enclosed in leaf bracts; its pollen was believed to be an aphrodisiac. Today the leaves are still used for plaiting and the colorful fruits for leis.

Hala was one of the plant forms for the mischievous demigod Kamapua'a.

māmaki



hala

hala pepe ***Pleomele spp.*** ***AGAVACEAE***

Hala pepe is a native plant growing in mountain forests and along steep cliffs. It is a member of the Lily family. The long, thin trunk and branches have clusters of long, smooth, narrow leaves at their tips. There are many tiny flowers making a drooping inflorescence; fruit clusters are yellow.

Hala pepe is one of the five important plants found adorning the altar of hula. It is the plant form of the sorcery goddess Kapo'ula kina'u, who is one of the patron deities of hula.

koa ***Acacia koa*** ***FABACEAE***

Koa is the largest of native forest trees. The beautiful red- to gold-grained wood was preferred for making canoes and surfboards. Today, furniture, musical instruments and bowls are made from koa. The true leaves of the koa have many small leaflets evenly divided on a main stem. As the tree matures, sickle-shaped leaf "stems" perform the same function as leaves and cover the tree. The clusters of small, yellow flowers look like puff balls and later develop into seed pods. In old Hawai'i, koa symbolized strength and courage and young trees were sometimes placed near the hula altar to inspire the dancers.

hala pepe

koa

ʻōhiʻa lehua Metrosideros polymorpha MYRTACEAE

The ʻōhiʻa lehua is one of the predominant trees of the Hawaiian forest. In the Hawaiian Islands it has adapted to many different kinds of habitats such as bogs where it grows to more or less a foot in height, in wet mountain forests where it can reach a hundred feet in height with an extremely hard wood, and near the ocean where its leaves have developed a resistance to the salt air.

The predominant color of the pom pom-like flowers is red with varying shades of salmon to orange, as well as the less common yellow and white flowers; the flowers, woven into leis mixed with leaves of ʻōhiʻa and other plant materials, were always included in legends of beautiful women like the volcano goddess Pele and her sisters, or the classic romance of "Laiʻe i ka Wai" and many others. In fact, the ʻōhiʻa lehua in full bloom was a symbol to the ancient Hawaiians of a young woman at maturity.

The green leaves of the ʻōhiʻa vary in shape, size and texture but generally are small and oval. They were used to make a tea.

The hard ʻōhiʻa wood was used for temple images, house building, spears, mallets, and in canoe construction.

The ʻōhiʻa lehua was an important symbol of hula and was one of the five plants found to adorn the hula altar of Laka (one of the patron deities of hula).

ʻōhiʻa lehua

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DICKSONIACEAE	Cibotium	glaucum	26
LINDSAEACEAE	Sphenomeris	chinensis	26

FLOWERING PLANTS:

FAMILY	*GENUS*	*SPECIES*	*PAGE*
AGAVACEAE	Cordyline	fruticosa	10
AGAVACEAE	Pleomele	spp.	36
APOCYNACEAE	Alyxia	oliviformis	28
ARACEAE	Colocasia	esculenta	6
ARECACEAE	Cocos	nucifera	20
ASTERACEAE	Artemisia	australis	30
BORAGINACEAE	Cordia	subcordata	14
CLUSIACEAE	Calophyllum	inophyllum	16
CONVULVULACEAE	Ipomoea	batatas	8
EUPHORBIACEAE	Aleurites	moluccana	14
FABACEAE	Acacia	koa	36
LILIACEAE	Dianella	sandwicensis	28
MALVACEAE	Gossypium	tomentosum	32
MALVACEAE	Hibiscus	tiliaceus	10
MALVACEAE	Sida	spp.	30
MALVACEAE	Thespesia	populnea	16
MORACEAE	Artocarpus	altilis	22
MORACEAE	Broussonetia	papyrifera	22
MUSACEAE	Musa	x paradisiaca	12
MYRTACEAE	Metrosideros	polymorpha	38
MYRTACEAE	Syzygium	malaccense	20
PANDANACEAE	Freycinetia	arborea	28
PANDANACEAE	Pandanus	tectorius	34
PIPERACEAE	Piper	methysticum	4
POACEAE	Saccharum	officinarium	2
POACEAE	Schizostachyum	glaucifolium	2
RUBIACEAE	Canthium	odorata	32
RUBIACEAE	Morinda	citrifolia	20
SAPINDACEAE	Dodonaea	viscosa	30
SOLANACEAE	Solanum	americanum	30
THYMELAEACEAE	Wikstroemia	spp.	32
URTICACEAE	Pipturus	albidus	34
ZINGIBERACEAE	Curcuma	domestica	8
ZINGIBERACEAE	Zingiber	zerumbet	4

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